CLAIMS:

What is claimed is:

1. An ink jet printhead for an ink jet printer comprising a nozzle plate attached to a heater chip, the heater chip including a semiconductor substrate, a resistive layer deposited on the substrate, a dielectric layer deposited on the resistive layer, a cavitation layer for contact with ink, and an adhesion layer between the dielectric layer and cavitation layer, wherein the dielectric layer is selected from the group consisting of silicon carbide/silicon nitride (SiC/SiN), diamond-like carbon (DLC), and doped DLC, the cavitation layer is selected from the group consisting of tantalum (Ta), titanium (Ti), and platinum (Pt), and the adhesion layer is selected from the group consisting of tantalum nitride (TaN), tantalum oxide (TaO), silicon nitride (SiN), and titanium nitride (TiN), provided the adhesion layer and cavitation layer are selected so that the adhesion layer has no elemental component in common with the cavitation layer when the dielectric layer is comprised of SiC/SiN.

2. The printhead of claim 1 further comprising a thick film layer containing ink flow features attached to the chip between the nozzle plate and the chip.

3. The printhead of claim 1 wherein the substrate includes an insulating layer disposed thereon and the resistive layer is deposited on the insulating layer.

4. The printhead of claim 1 wherein the adhesion layer has a thickness ranging from about 100 to about 1000 Angstroms.

5. The printhead of claim 1 wherein the adhesion layer is a reaction product of silicon-doped DLC and nitrogen.

6. The printhead of claim 1 wherein the cavitation layer comprises tantalum and the adhesion layer comprises silicon nitride.

7. The printhead of claim 6 wherein the dielectric layer is selected from the group consisting of DLC and doped-DLC.

8. The printhead of claim 1 wherein the cavitation layer comprises titanium and the adhesion layer comprises tantalum nitride.

9. The printhead of claim 8 wherein the dielectric layer is selected from the group consisting of DLC and doped-DLC.

10. A method for enhancing adhesion between a dielectric layer and a cavitation layer of an ink jet printhead heater chip comprising the steps of:

providing a semiconductor substrate,

depositing an insulating layer on the substrate, the insulating layer having a thickness ranging from about 8,000 to about 30,000 Angstroms,

depositing a resistive layer on the insulating layer, the resistive layer have a thickness ranging from about 500 to about 1,500 Angstroms and being selected from the group consisting of TaAl, Ta_2N, TaAl(O,N), TaAlSi, TaSiC, Ti(N,O), WSi(O,N), TaAlN, and TaAl/Ta,

depositing a first metal layer on the insulating layer and etching the first metal layer to define ground and address electrodes and a heater resistor therebetween,

depositing a dielectric layer on the heater resistor, the dielectric layer having a thickness ranging from about 1000 to about 8000 Angstroms and being selected from the group consisting of silicon carbide/silicon nitride (SiC/SiN), diamond-like carbon (DLC), and doped-DLC,

inserting an adhesion layer on the cavitation layer, the adhesion layer having a thickness ranging from about 100 to about 1000 Angstroms and being selected from the group consisting of tantalum nitride (TaN), tantalum oxide (TaO), silicon nitride (SiN), and titanium nitride (TiN), and

depositing a cavitation layer on the adhesion layer, cavitation layer having a thickness ranging from about 1,500 to about 8,000 Angstroms and being selected from the group consisting of tantalum (Ta), titanium (Ti), and platinum (Pt), wherein the adhesion layer and cavitation layer are selected so that adhesion layer has no elemental component in common with cavitation layer when the dielectric layer comprises SiC/SiN.

11. The method of claim 10 wherein the adhesion layer is inserted by reacting a component used in forming a dielectric layer of Si-doped-DLC with a nitrogen

containing compound under conditions and for a period of time sufficient to form a nitride containing layer having a thickness ranging from about 100 to about 200 Angstroms.

12. The method of claim 10 wherein the dielectric layer comprises DLC or doped-DLC, the cavitation layer comprises tantalum and an adhesion layer of silicon-nitride is deposited on the dielectric layer.

13. The method of claim 10 wherein the dielectric layer comprises silicon carbide deposited on silicon nitride, the cavitation layer comprises tantalum and an adhesion layer of titanium nitride is deposited on the silicon carbide.

14. A printhead containing a heater chip made by the method of claim 10.